

Dehaven and the American expedition under his command. Some difficulty had been before experienced in obtaining this concession, owing to a claim of priority of discovery by a party of British navigators; but the final investigation of the British authorities and men of science had resulted in the acknowledgment of the priority of the American discoveries, and the adoption of the names given to the discovered land by Com. Dehaven.

Mr. Fraley, from the Committee appointed at last meeting on the subject of a sale or exchange of the Society's Hall, reported that a conference had been held with a sub-committee of the City Councils in relation to the matter; but that no result beyond a mere interchange of opinions had been arrived at. No definite powers being possessed by either of the Committees, the meeting was considered as merely preliminary to further conference:—

Whereupon, Dr. Harris having taken the chair, Judge Kane offered the following resolution, which was read, considered and adopted:—

Resolved, That, in the opinion of this meeting, it would be proper to make sale, to the City of Philadelphia, of the property now held by the Society on Independence Square, provided the same can be made on such terms as will secure to the Society adequate accommodations without impairing its income or otherwise interfering with its interests;—and, that the Committee appointed at the last stated meeting be continued, with authority to negotiate with the City of Philadelphia or any Committee appointed by its authority.

Mr. Trego, reporter of the Society, announced the publication of No. 52 of the Proceedings, and laid a copy thereof upon the table.

Stated Meeting, February 16.

Present, thirteen members.

Prof. A. D. BACHE, President, in the Chair.

Letters were read:—

From the Geological Commission of the Netherlands, dated Haarlem, Oct. 20, 1854,—and from Samuel H. Congar, dated

Hall of the New Jersey Historical Society, Feb. 1, 1855, announcing donations for the library:—

From the Society of Antiquaries of Scotland, dated Edinburgh, Jan. 16, 1855, returning thanks for Part 3, Vol. X. of the Transactions,—and from the Antiquarian Society, dated Worcester, Massachusetts, Feb. 3, 1855, acknowledging the receipt of No. 52 of the Proceedings of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Verhandelingen der Commissie belast met het vervardigen eener Geologischen Beschrijving en Kaart van Nederlands. Tweede Deel. Haarlem, 1854. 4to.—*From the Government of Holland.*

Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. Tweede Verzameling. iv. Deel, 1848. xi. Deel, i. Stuk, 1854. Haarlem. 4to.—*From the Holland Society of Sciences at Haarlem.*

History of Mason and Dixon's Line, contained in an Address delivered by John H. B. Latrobe, of Maryland, before the Historical Society of Pennsylvania, Nov. 8, 1854. Philadelphia, 1855. 8vo.—*From the Author.*

Historical Discourses relating to the First Presbyterian Church in Newark:—originally delivered to the Congregation of that Church during the month of January, 1851. By Jonathan F. Stearns, D.D., Pastor of the Church. Newark, 1853. 8vo.—*From Samuel H. Congar, Esq.*

Shaffner's Telegraph Companion, devoted to the Science and Art of the Morse American Telegraph. By Tal. P. Shaffner, Esq., Secretary of the American Telegraph Confederation, New York City. Vol. II. No. 1. New York, 1855. 8vo.—*From an Anonymous Donor.*

Biographical Notice of Charles Caldwell, M.D., read before the American Philosophical Society, by appointment, January 19, 1855. By B. H. Coates, M.D. Philadelphia. 8vo.—*From the Author.*

Report of the Board of Managers of the Mine Hill and Schuylkill Haven Rail Road Company, at their Annual Meeting, Jan. 8, 1855. Philadelphia. 8vo.—*From John C. Cresson, Esq.*

A Consideration of the Plans proposed for the Improvement of the Ohio River. By Herman Haupt, Civil Engineer. Philadelphia, 1855. 8vo.—*From James J. Barclay, Esq.*

- Sense and Sound, as they reciprocally form any sign of Mind. By John Gaskell, author of "the Philosophy of Numeration." Philadelphia, 1854. 8vo.—*From the same.*
- The Astronomical Journal. Vol. IV. No. 8. Jan. 31, 1855. Cambridge. 4to.—*From Dr. B. A. Gould, jr., Editor.*
- The Florist and Horticultural Journal. Vol. IV. No. 2. Philadelphia, 1855. 8vo.—*From H. C. Hanson, Editor.*
- Quarterly Journal of the Chemical Society. Vol. VII. No. 4. Jan. 1, 1855. London. 8vo.—*From the Society.*
- Journal of the Franklin Institute. 3d Series. Vol. XXIX. No. 2. Feb. 1855. Philadelphia. 8vo.—*From the Institute.*
- Progress of the United States in Population and Wealth, for Sixty Years, 1790 to 1850. By George Tucker. New York. 8vo.—*From the Author.*

Prof. Frazer, pursuant to appointment, at a former meeting, read an obituary notice of the late Professor Henry Reed, a member of this Society.

Henry Reed, the subject of our notice, was born 11th of July, 1808. He was a grandson of Gen. Joseph Reed, of revolutionary memory, the first executive officer of the State of Pennsylvania; the brother of his mother also distinguished himself by zeal and courage during the second war against Great Britain. The family is of English descent, and many of the best qualities which characterize the Englishman were hereditary in our late friend.

Mr. Reed received the rudiments of his education at the best schools in our city: entered the Sophomore Class of the Department of Arts of the University of Pennsylvania in 1822, and after passing with great credit to himself through the usual routine of studies, graduated with distinguished honours in 1825, in his 17th year. During his schoolboy days he was remarkable for his indifference to the athletic games in which his comrades delighted, and for the serious interest with which he devoted himself to his studies. Even at this early age he paid great attention to the cultivation of a correct style of writing, so that his scholastic exercises were marked by an elegance and grace very unusual among our young men: and the simplicity and force of his language, combined with logical method and great powers of analysis, gave him at college high standing as a student; while his modest and serious demeanour, and his devotion to learning, insured to him the affectionate interest of his professors.

On leaving the University he selected the law as his profession,

and entered as a student the office of the Hon. John Sergeant, who had married his mother's sister, on the 3d of April, 1826, and was admitted to practice 7th September, 1829. But the excitement and bustle of the life of an active lawyer were little suited to his retiring and reflective habits; and in 1831, then in his 23d year, he gladly accepted the position of assistant Professor in the Department of Arts of the University of Pennsylvania, tendered him by the Trustees; and on 8th November of the same year he succeeded the Rev. Edward Rutledge as assistant Professor of Moral Philosophy in the same faculty. The task he undertook was a difficult one; the manners and abilities of his predecessor had endeared him to the students; and Mr. Reed was himself too susceptible to the influence of such a character, not to feel the responsibility which he assumed in consenting to replace him. His success, however, was from the first complete; and in February, 1835, the Trustees of the University elected him to the Professorship of Rhetoric and English Literature, which at their previous meeting they had created in his favour. From this time until his death, during a period of almost twenty years, Mr. Reed devoted himself, earnestly and unremittingly; tasking to the utmost all the powers of body and mind, to the advancement of the interests and the increase of the usefulness of the institution which he loved as an alumnus, and to which he gave honour as a Professor. The depth of his learning, and his success as an instructor, won for him the confidence of the Trustees and of the community; while he endeared himself to the students by the gentleness and dignity of his manner, and the affectionate interest which he always manifested in their welfare.

The assiduous labours to which he devoted himself, joined to the cares and anxieties inseparable from the condition of an ardent disposition compelled to seek in its influence over others, the means of satisfying its own sense of right, gradually undermined his health, which reposed on a constitution not naturally strong; and after a tedious and almost fatal illness, finding his duties and anxieties still too great for his slowly returning health, he resolved, under the advice of his physician, to spend the vacation of 1854 in travelling; to gratify the many warm friends which he had made for himself abroad and visit that country dear to him as the home of his ancestors, and as the birth place of the literature which he so loved. He sailed for England in May, and after a visit short indeed, but full of the most gratifying and pleasing incidents, the delights of which drowned his unpleasant recollections, and reinvigorated his mental and physical

energies; he, in an unfortunate hour, placed himself for the purpose of returning, on board the steamer Arctic, and lost his life in the awful catastrophe which overwhelmed that ill fated vessel on the 27th of September: when last seen, he was sitting with his sister-in-law, who had accompanied him on his tour, in the ante-room of the cabin, sad but calm; sad, for his mind turned to his home, and pictured to him the sufferings of those who were then preparing a joyous welcome for him; calm, for his hopes both for himself and them were long since anchored in that land towards which his fate now called him. It was not in his nature to struggle for life amid the crowd of miserable men whom fear was driving to forgetfulness of their duties; nor to pass to the reward which he had assured for himself, indifferent to the sufferings of those who so dearly loved him; sad but calm, he died as he had lived, illustrating the lofty principles of christianity which had always been his guide and reliance.

Mr. Reed's physical constitution was naturally not strong, but by care and abstemious habits he preserved his health until near the close of his life, so as to admit of the most sedulous attention to his duties; his temperament was ardent, his attachments strong, and his natural disposition probably impulsive and passionate; the prevailing sense of duty, however, which formed the basis of his character, had led him early in life to struggle with and subdue whatever in his nature did not harmonize with the lofty standard which he had set up for himself, and while he preserved his native warmth in his love of his friends, and zeal for their service, he had acquired a self-control which rendered him a courteous and liberal opponent to those from whom he might differ in opinion.

It may be doubted whether any man was ever better suited by his tastes and talents for his profession, than was Mr. Reed for the department of usefulness which he selected for himself. The characteristic of his intellect was its admirable power of analysis, while his inclinations disposed him to habits of study and retirement. Thus, whatever he did, was done after thorough investigation and deep reflection; and his results showed a fulness and clearness not otherwise to be attained. The difficulties of the student were anticipated and removed before they had time to operate to the discouragement of his exertions; his emulation was excited by the new views which were suggestively offered to him; while the unaffected dignity of demeanour, tempered by gentleness and constant and affectionate interest in their welfare, gave him an extraordinary influence over their minds, and insured their attention to his studies better than could have been done

by the sternest system of discipline. We cannot wonder, then, that Mr. Reed was so universally esteemed and beloved by his pupils; and that among the number of excellent men who before him and with him, sat in the Faculty of Arts, and whose loss the University has had to deplore, he stands pre-eminent in the affections of its graduates.

As a literary man, the tastes of Mr. Reed were essentially imbued with the deep religious feeling which was the predominant element of his mind. Hence the tone of earnestness and directness which characterized his own style, and which he so loved to find in others; hence his admiration for every thing that was pure in its spirit or lofty in its aspirations; and his aversion to all that was sensuous and demoralizing, no matter how brilliant might be its diction, or how captivating its rhetoric; hence his enthusiasm for Coleridge and his sympathy with Wordsworth; hence also the peculiar attractiveness of his writings in which a graceful and powerful simplicity of language is used to convey the earnest sentiments of one who had trained himself to think purely and profoundly.

His faith in his religion was a conviction beyond all mere logical demonstration; it was as clear as his belief in his own existence, and gained nothing from the support of external evidences. His ideas of duty were lofty and rigid, and his indignation warm against every thing which proceeded from a low standard of morality. Yet no one knew better to confine his virtues within their appropriate provinces; and while he felt deeply, and warmly advocated his own peculiar views, no one conceded more fully to others the right of individual opinion; while no inducement would tempt him to do wrong or to abstain from that which was right, no one yielded a readier or more graceful obedience to the sometimes annoying and often frivolous requisites of social life.

Although Mr. Reed read and thought much, he wrote but little, and during his life he published nothing of importance except the editions of Wordsworth's Poems and Lord Mahon's History; both of which testify to his ability and conscientiousness in the performance of his duties, while the former illustrates besides, his sympathy with the poet and his delicate perception of all that is excellent and beautiful in his writings. Mr. Reed's manuscript of his lectures is, however, fortunately preserved, and will, by the care of his brother, enable scholars more fully to appreciate that depth of pure learning, which during his life was known only to his friends and pupils.

In the intercourse of ordinary life, Mr. Reed's manner indicated

the peculiarities of his mind. He was generally reserved and serious, yet neither indifferent nor severe; unbending easily and gracefully when harmless gayety was reasonable, yet always with an innate unaffected dignity; always polite, yet so far removed from affectation or obsequiousness, that no one could be blind to the motives which, loftier than fear of offence or desire of praise, ruled his conduct: in no way, perhaps, has Mr. Reed more benefited the community in which his whole life was spent, than by the example which he has set them, how a proper conception of the principles of Christianity begets the virtues and the adornments of a gentleman.

But when we have looked upon Mr. Reed as a teacher, as a scholar, and as a gentleman, we have yet but an imperfect knowledge of his character; the true life of Mr. Reed was with his family; to them he always felt was his chief duty; with them was always his greatest pleasure. There, in the company of those he transcendently loved; with those who sustained and bettered him by their sympathies, all inducements to goodness around him, and all temptations to evil shut out with his house door; there he found the quintessence and the reward of his life. But into this holy ground we cannot follow him; let us confine ourselves to the attempt to express how valuable and how dear he was to us.

In 1834, he married Miss Elizabeth Bronson, a grand-daughter of the late Bishop White, who, together with three children, survive him.

He was elected to the American Philosophical Society, January 19, 1838, and chosen as a member of its council, January 3, 1851.

Mr. Trego read an obituary notice of Wm. H. Dillingham, Esq., a deceased member, prepared at the request of the Society, by Dr. William Darlington.

The subject of this notice presented, in his life, one of those striking and exemplary instances, in which the descendants of the pilgrim fathers of New England—under their admirable system of educational training, and by their persevering energies—are so often enabled to elevate themselves to a distinguished position among their contemporaries; and when their course is run, to leave their

“Foot-prints on the sands of time.”

The immigrant Puritans, and the earlier posterity of those who landed on the Plymouth rock, were indeed a peculiar people. The history of our race furnishes no parallel to their character and career.

Sternly moral, and devoutly religious; animated, moreover, by an indomitable spirit of enterprise, and endowed with a keen perception, and thorough appreciation, of the inalienable rights of man, they were singularly fitted for their destined mission:—namely, the repudiation of tyranny, and the founding of a great democratic republic in this western hemisphere. All their undertakings were signalized by a rare combination of the most fervent piety and the shrewdest worldly wisdom. They practically illustrated the significant maxim—derived from the fatherland, in the stirring times of “*The Commonwealth*”—to *trust in the Lord, and keep their powder dry*.

From this remarkable and hopeful stock, sprang our lamented fellow-member, the course and incidents of whose life it is here proposed very briefly to sketch; and whose sterling worth we are all fain to commemorate. The limits, deemed appropriate to this occasion, will admit of little more than a chronological list of dates, events, and employments.

William H. Dillingham, son of Nathan and Rebecca [Fessenden] Dillingham, was born in the town of Lee, in Western Massachusetts, on the 3d of August, 1791. His education, preparatory to a collegiate course, was acquired at Lenox Academy, in the vicinity of his birth-place. At the age of 15 years, he entered the Sophomore Class in Williams College, where he continued a year and a half. The circumstances of his family, however, rendered it expedient to withdraw him from college before his course was completed: but his *alma mater* subsequently—viz. in 1815—conferred on him the honorary degree of A. M.

In the year 1808, he came to Philadelphia, and commenced the study of law under the auspices of the late Charles Chauncey, Esq., a gentleman who was ever his generous friend and faithful counsellor; and for whom, to his latest hour, he cherished the most profound veneration, and grateful regard.

In 1811, Mr. Dillingham was admitted to the bar; and thereupon settled himself, for some time, in this city of Penn, as a practitioner of the law.

With a taste finely cultivated, and a decided predilection for literary and scientific pursuits, he was always ready to aid in establishing and fostering institutions which promised to enhance the intellectual and moral character of the community. Accordingly, we learn that in 1813, he was one of “half a dozen young men of Philadelphia,” who “came together and arranged a plan for the establishment of reading rooms.” From this slender beginning—and the con-

tinued "valuable services" of our friend, co-operating with other public-spirited citizens—has resulted the noble institution, which is at once an ornament and a benefaction to our metropolis, under the name of the *Athenæum*.

In the autumn of 1814, when a Vandal horde—in a predatory incursion to the capitol—had burnt our Senate house, mutilated the classic memorials erected in honour of the gallant dead, destroyed the national library, and were menacing with like operations every accessible city in our land, the flower of the Philadelphia youth, emulous of their revolutionary sires, promptly rallied in defence of our altars and firesides; and there, in the patriot ranks, we find our friend Dillingham, musket in hand, doing duty as a private soldier in one of the companies of Washington Guards. Being honourably discharged at the close of the campaign, he returned to his office, and to the practice of his profession.

He continued in the city until 1817, when he removed to West Chester, the seat of justice in Chester County, Pennsylvania; where, by his diligence, fidelity, and legal ability, he rapidly advanced toward the head of the bar, among competitors distinguished for talents and professional acumen. He was especially remarked for that exemplary trait in a barrister, of being always well prepared, and ready for trial—so far as depended on himself—when his cause was called on.

In 1821, he received the appointment of prosecuting attorney for the county; which office he held until the close of the year 1823.

In the month of May, 1823, he married Christiana, daughter of Joseph H. Brinton, Esq. of Chester County; and thus became identified in feeling and interest with the people among whom he resided. He co-operated cordially in all measures propounded for the public benefit; and was a liberal supporter of all their institutions—religious, educational, literary, and scientific. His professional abilities becoming generally understood, his services were consequently, put in requisition in nearly every important case within the sphere of his practice. He was employed as solicitor of the Bank of Chester County for upwards of 15 years; was one of the founders, and a principal manager, of the Chester County Athenæum; was a Trustee of the West Chester Academy for 17 years; and a munificent member of the Chester County Cabinet of Natural Science, for nearly 20 years.

In 1837, he was elected to the State Legislature, where he was

both active and eloquent in the great cause of education, and in the support of scientific institutions.

In the autumn of 1841—after a residence of nearly a quarter of a century in West Chester—Mr. Dillingham returned to Philadelphia, where he passed the residue of his days: but, in retiring from Chester County, he by no means ceased to be interested in the concerns of that venerable bailiwick. In all the movements of her people, designed to elevate the pursuits of agriculture, and to promote a taste for the refinements of horticulture, he manifested a lively interest. When, in 1847, the Chester County Horticultural Society were projecting their spacious hall—the *second* edifice, dedicated expressly to Flora and Pomona, in these United States—Mr. Dillingham cheered them on, in their generous purpose, by a remarkably able, learned, and persuasive address, which convinced them that in the vocabulary of a people embarked in such an enterprise, in such a region, there should be no such word as fail.

It might be supposed, that by merging himself in our vast and growing metropolis, after so long an absence, he would be lost to public view: but not so. His qualifications were justly appreciated, and his services speedily secured by various and important establishments; such as the direction of the Public Schools—the Institution for the Blind—for the Deaf and Dumb—the Schuylkill Navigation, &c.

In July, 1843, he was elected a member of this Society; and justified the choice, by his zeal for its prosperity, and his anxiety that it should continue worthy of the great names associated with its early history.

In the latter years of his life, Mr. Dillingham gradually withdrew from the active duties of his profession, though he served as counsel for the Bank of Pennsylvania, from 1846 until 1852; when the feeble state of his health, induced by a slight paralytic affection, caused him to resign. His infirmities continued to increase, attended with great nervous excitability—though still retaining his mental faculties, and his literary predilections, in their wonted activity—until the 11th of December, 1854, when he suddenly departed this life. The writer of this has a letter from him, dated December 8, and received after his decease, in which—remarkably enough he refers with peculiar interest, to the “proceedings of the American Philosophical Society,” and invites attention to “those graphic and very interesting sketches of character, in the number for January and June last.”

Although the published and avowed productions of his pen are not

voluminous, our friend was a frequent contributor of elegant and judicious essays to the leading journals of the times. He was also the author of several highly finished performances, in the character of orations and reviews. Of these, it is sufficient to mention his addresses before the Chester County Cabinet of Natural Science—the Alumni of Williams College—the Chester County Horticultural Society—the Society of the Sons of New England in Philadelphia—and his glowing tribute to the memory of Peter Collinson. His researches, in procuring authentic materials for his discourses, were indefatigable; his literary taste was refined almost to fastidiousness; and hence his style is terse, chaste, and polished. It may be safely predicated of him, as a writer—*nihil tetigit quod non ornavit*.

The minutes of the Board of Officers and Council of the Society at their late meeting were read.

Mr. Peale made a communication on the subject of Coinage, embracing a variety of facts and observations, particularly in relation to the processes of preparing and reproducing dies for monetary and medalic purposes; and, in connection therewith, exhibited electrotype and other copies of coins and medals.

He said, that the observations he was about to offer to the attention of the Society were selected from his notes, upon numismatic operations, and were the result of many years of experience, and had been used, at various times, and on various occasions, whilst an officer of the government, in the department to which they refer.

He further observed, that the enthusiasm which had always been an impelling principle whilst endeavouring to fulfil his duties, might have made him overvalue the matter, and that in now asking the attention of the Society, he was committing a similar error; in which case he could ask the indulgence due, and so often granted, under like circumstances.

It cannot be doubted, that the coinage of a country, of high rank in the scale of nations, should bear evidence on its face, in the first place, of the condition and progress both of the fine, and mechanic arts, within its borders; and to insure, in the second place, the greatest degree of security against fraudulent imitations, or counterfeiting, which desirable object can best be secured by the employment of the highest grade of artistic talent in the design of the device, and its execution throughout, to the finished coin as issued from the mint.

A brief notice of die-sinking, and the reproduction of dies for

coinage, will be appropriate before proceeding further with the subject.

In the advance of the mechanic arts, in modern times, great facilities have been devised therein. The arts of medal engraving and die-sinking have largely participated; rapid and exact mechanical means now take the place of the laborious and imperfect ones which formerly embarrassed this important art. I will endeavour to exemplify them as briefly as possible.

The artist or designer models in a plastic material, such as wax or clay, a medallion portrait, or other device in relief, of sufficient size to permit freedom of handling, and facile study of effect; from this model a cast can be taken in plaster of Paris, or it may be electrotyped in copper. From the mould thus obtained, copies can be cast in hard metal, bronze or iron, which may be further retouched or finished, at the will of the artist.

The model, prepared as above, is placed in the portrait lathe, for which we are indebted to the French. By means of mandrils, revolving in equal periods of time, upon one of which the model is placed, and on the other the material for the copy or reduction, in front of which mandrils a *bar* is made to traverse, carrying a *tracer*, which passes over the face of the model, touching, in succession, every part of the model in a spiral line from centre to circumference, or vice versa, a *tool* on the same bar, opposite the mandril bearing the material, necessarily obeys the same motions, and is thus made to cut a fac simile of the model, the construction of the whole being such as to admit of any proportionate relation in size. By means of this lathe, rapid and exact reductions are made in steel, with an infinitely decreased amount of labour, and having the great advantage, as far as coining purposes are concerned, of retaining faithful proportionate relations in the different denominations of pieces bearing the same device. The lettering of legends is usually put in at this stage of proceeding by hand, as well as minor and detached parts.

This, in general but concise terms, is the mode of operating, when a new device is to be executed for a medal or coin; but at this point an important distinction exists, and we must separate, by a very marked division, the two branches of the art, that of medal-striking and the coining of money. In the former, repeated blows upon a disc of metal, with intervening annealings, enable a device, of any degree of elevation, to be brought up, as it is technically termed, whilst in the latter we are restricted to a single blow, or action of the coining press, upon the prepared disc or "blank," and hence the ne-

cessity of such judicious care and skill in the device and engraving as shall give the strongest effect to the coin, with the least degree of elevation; a most desirable object, when it is known that each pair of dies is required to strike off pieces, numbering from 50 to 200 thousand, with as little injury to the face as possible, as any difference in appearance of coin from the wear of the dies is to be deprecated.

Remarks of importance, in relation to the character of the device, will be introduced in a subsequent part of this communication.

The foregoing relates principally to the execution of new devices, and it is hoped are sufficiently explicit to show the vast saving of labour derived from the process in comparison to the old plans of operating, in prosecuting which, the engraver was obliged to dig out the solid metal by slow and laborious means, taking impressions of parts as he progressed in plastic material, and consuming long periods of time, according to the elaboration, or magnitude of the device.

Equal, if not superior facilities, have been applied to the preparation of the dies for coinage of money; the process in its most improved condition, was learned in the mint of Paris, and introduced by myself into the mint of the United States, about the year 1836. It is the transfer from an original die, by pressure on a softened steel punch or "hub," as it is technically called, a fac simile in relief, which *hub*, after hardening, is used to strike in soft steel properly prepared, the impressions which, after turning off the superfluous metal, hardening, and tempering, and other preparations, form the ordinary coining dies.

By the above described process, dies in indefinite and almost unlimited numbers, can be made complete, with the devices, legends and ornaments in perfect similitude, whilst, by the ancient process, they were separate operations, by hand, and, of course, no two could be made exactly alike, requiring skilful die-sinkers to approximate to such a condition, if at all possible, whereas the present process needs only the manipulation of skillful mechanics.

Were it not for the facilities, of which the above is a condensed notice, the four or five hundred pair of dies, now required for the service of the mint of the United States and its branches, could not be furnished without a very large and expensive engraving establishment.

When new devices are required, the best talent and highest grade of skill, within the command of the government, should be employed at any cost for its execution in the most perfect style. And, further, I do not hesitate to say, that if artistic talents and skill of sufficient

eminence cannot be found in this country, to place our coin in the highest rank of the coin issues of the civilized world, we should look for and employ its aid wherever it can be found.

The above views are sustained by the usages of the mints of France and England. In the former the original dies or matrices are procured by competition (concurrence), judged and selected by commissioners appointed for the purpose; and, in the latter, since the late reform, by competent artists selected for the purpose.

Coining dies, it is evident to all acquainted with the subject, as above described, can be procured by the services of mechanics of good ordinary skill; and it is not necessary that they should be die-sinkers by profession.

It will not, I hope, be deemed irrelevant to introduce a few remarks on the mechanical relations and exigencies by which the devices of coins are controlled, and which have a most important bearing on the style and execution of them.

It has already been said, and now repeated, that the coiner is limited by the nature of the service, to a single blow of the press in striking pieces of money; it is important, therefore, that the design of the device should be so disposed as to give the strongest effect with the least degree of elevation, not only for the purpose of giving the utmost degree of legibility to the impressions on the coins, and thus prepare them to retain their distinctness, during circulation, to the longest period of time, but also to save the dies as much as possible, under the severe usage to which they are subjected.

Force and strength of expression in a coin are best attained by a judicious outline in strong relief, whilst the general relief is kept as much subdued as possible. In fact, the centre of the device should not rise above a plane of which the outline forms the boundary. On the contrary, if a device on coin rises in the middle it compels a reduction of the outline to faintness, producing a weak and unsatisfactory effect, is hard to strike, is soon obscured by abrasion, and entirely deprives the coiner of the opportunity of polishing the *table* or plain part of the dies, and back ground of the coin, the first being the usual technical term, a grave fault very often observed in what, if otherwise executed, would be works of high artistic excellence. The type of the species of relief alluded to, is found in the frieze of the Parthenon, where strong shadows from a bold outline, give the effect of depth by means well understood by the ancients, and of comparatively easy execution.

The obverse of a coin should bear the strongest device, being the

most important side, the reverse must be subsidiary, its bearings should therefore be simple, such as broad letters, a shield, wreath or other ornament in low relief, so that the force of the impression may be concentrated on the obverse. By this disposition the best effect is given to the most important side of the coin.

The United States Mint labours under a disadvantage in this respect, the most of our pieces having devices on both sides, of equal depths, in consequence of which the force of the blow, and the necessary metal to supply the impression, is distributed between the two sides, thus making both weak, and losing the effect of a more judicious disposition.

After long experience, observation and reflection on this subject, I am decidedly of opinion that the *obverse* of all coins should present the device of a *head or profile*, whether it be a "composition emblematic of Liberty," or a portrait. The likeness of our glorious Pater Patriæ, Washington, might justly be considered the embodiment of Republican liberty—or the classic head of high art, with the admitted exquisite beauty of the Greek school, are alike applicable. I do not desire to give a decided opinion relative to either, but I say the obverse should be thus engraved because, in the first place, the highest grade of artistic talent and excellence is required for its conception and execution, much more elevated than that required for the usual armorial or inanimate delineations; and, secondly, because its effect, when well and suitably executed for coining purposes, is better adapted to the mechanical exigencies which control the operation. The reverse should, as I believe, be plain and legibly lettered, with the denomination of the piece, in the middle of the field, surrounded by a wreath of rich composition, in low relief, with the usual legend around the border. The design of the wreath might contain the products of the North, West and South, the wheat, corn and cotton of our wide spread domain.

The disadvantages of the full-length figure of our silver coins, or any other full-length figure, are these. The minute size of the head, hands, limbs and other portions, debars the artist from the ability to give the expression and finish that a high grade of art, under other circumstances, permits, and when executed, however well, interposes difficulty in transferring the impression to the coin.

The various views, above presented, are sustained, and appear to have had their influence, by the best and most recent coinages of Europe.

I have only to fear that I have not brought them in relief (to use an appropriate figure), with the force to which, as I respectfully conceive, they are entitled.

Stated Meeting, March 2.

Present, fifteen members.

Prof. FRAZER, Vice-President, in the Chair.

A letter was read from the Corporation of Harvard College, dated Cambridge, Jan. 26, 1855, returning thanks for No. 52 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Rough Notes of an Exploration for an Inter-Oceanic Canal Route, by way of the rivers Atrato and San Juan, in New Granada, South America. By John C. Trautwine, Civil Engineer. Philadelphia, 1854. 8vo.—*From the Author.*

Official Army Register for 1855. Published by order of the Secretary of War. Washington, Jan. 1, 1855. 8vo.—*From Major H. Bache.*

Report of the Pennsylvania Hospital for the Insane, for the year 1854. By Thomas S. Kirkbride, M.D., Physician to the Institution. Philadelphia. 8vo.—*From the Author.*

Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1854. Philadelphia. 8vo.—*From James J. Barclay, Esq.*

The Plough, the Loom and the Anvil. Vol. VII. No. 8. Feb. 1855. New York. 8vo.—*From the Editor.*

The Astronomical Journal. Vol. IV. No. 9. Feb. 21, 1855. Cambridge. 4to.—*From the Editor.*

American Journal of Science and Arts. Vol. XIX. No. 56. March, 1855. New Haven. 8vo.—*From the Editor.*

Eighth Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures and Condition of the Institution up to Jan. 1, 1854,—and the Proceedings of the Board up to July 8, 1854. Washington. 8vo.—*From Prof. J. F. Frazer.*